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**FINAL SITE INSPECTION REPORT
FOR
NICKSON INDUSTRIES
SOUTHINGTON, CONNECTICUT**

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Prepared For:
U.S. Environmental Protection Agency
Region I
Office of Site Remediation and Restoration
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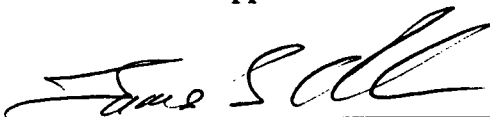
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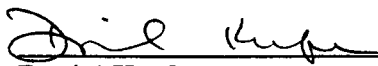
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11 January 1999

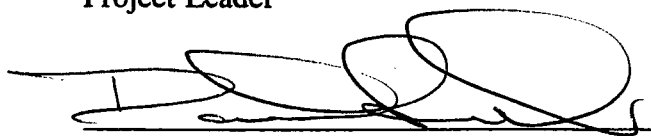
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DISCLAIMER

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SEDIMENT SAMPLE ANALYTICAL RESULTS
START
Samples collected on 3 December 1997**

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INTRODUCTION

The Roy F. Weston, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) was requested by the U.S. Environmental Protection Agency Region I (EPA Region I), Office of Site Remediation and Restoration to perform a Site Inspection (SI) of the Nickson Industries property at the intersection of West and West Main Streets (specifically, 8 West Street) in Southington, Connecticut. Tasks were conducted in accordance with the SI scope of work and technical specifications provided by EPA Region I. A Preliminary Assessment (PA) Report for the Nickson Industries property was completed by the NUS Corporation Field Investigation Team (NUS/FIT) on 18 July 1988. In the PA Report, NUS/FIT noted that former on-site plating waste settling pits were a potential area of concern. On the basis of the information provided in the PA Report, the Nickson Industries SI was initiated.

Background information used in the generation of this report was obtained through file searches conducted at the EPA Region I and the Connecticut Department of Environmental Protection (CT DEP), telephone interviews with town officials, conversations with persons knowledgeable of the Nickson Industries property, and conversations with other Federal, State, and local agencies.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA Region I regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, State, or local regulations. SIs are intended to provide a preliminary screening of sites to facilitate EPA Region I's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

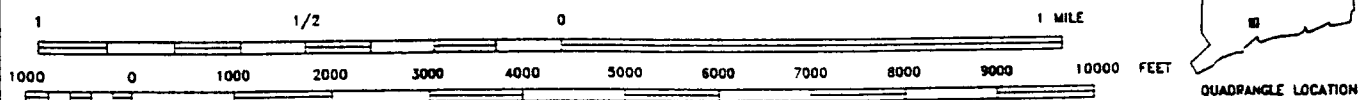
SITE DESCRIPTION

The Nickson Industries property is located at 8 West Street (at the intersection of West and West Main Streets) in Southington, Hartford County, Connecticut. The geographic coordinates as measured from the center of the property are 41° 35' 18.5" north latitude and 72° 53' 56.5" west longitude (Figure 1) [1]. The Nickson Industries property consists of a 2.1-acre parcel recorded by the Town of Southington Tax Assessor's Office as Map No. 70, Lot No. 5 [2].

The Nickson Industries property is zoned industrial and is located in a primarily commercial and industrial section of Southington. The property is bound by local businesses to the north; West Street and undeveloped commercial property to the east; and the Eightmile River, local businesses, and Interstate 84 to the south and west (Figure 2) [3]. The nearest residence is located approximately 0.1 miles northeast of the Nickson Industries property at 29 West Street [3].



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' x 7.5' U.S.G.S. QUADRANGLE(S):
 SOUTHINGTON, CT 1968, PHOTOREVISED 1984
 MERIDEN, CT 1968, PHOTOREVISED 1984



LOCATION MAP

NICKSON INDUSTRIES
 WEST AND WEST MAIN STREETS
 SOUTHINGTON, CONNECTICUT

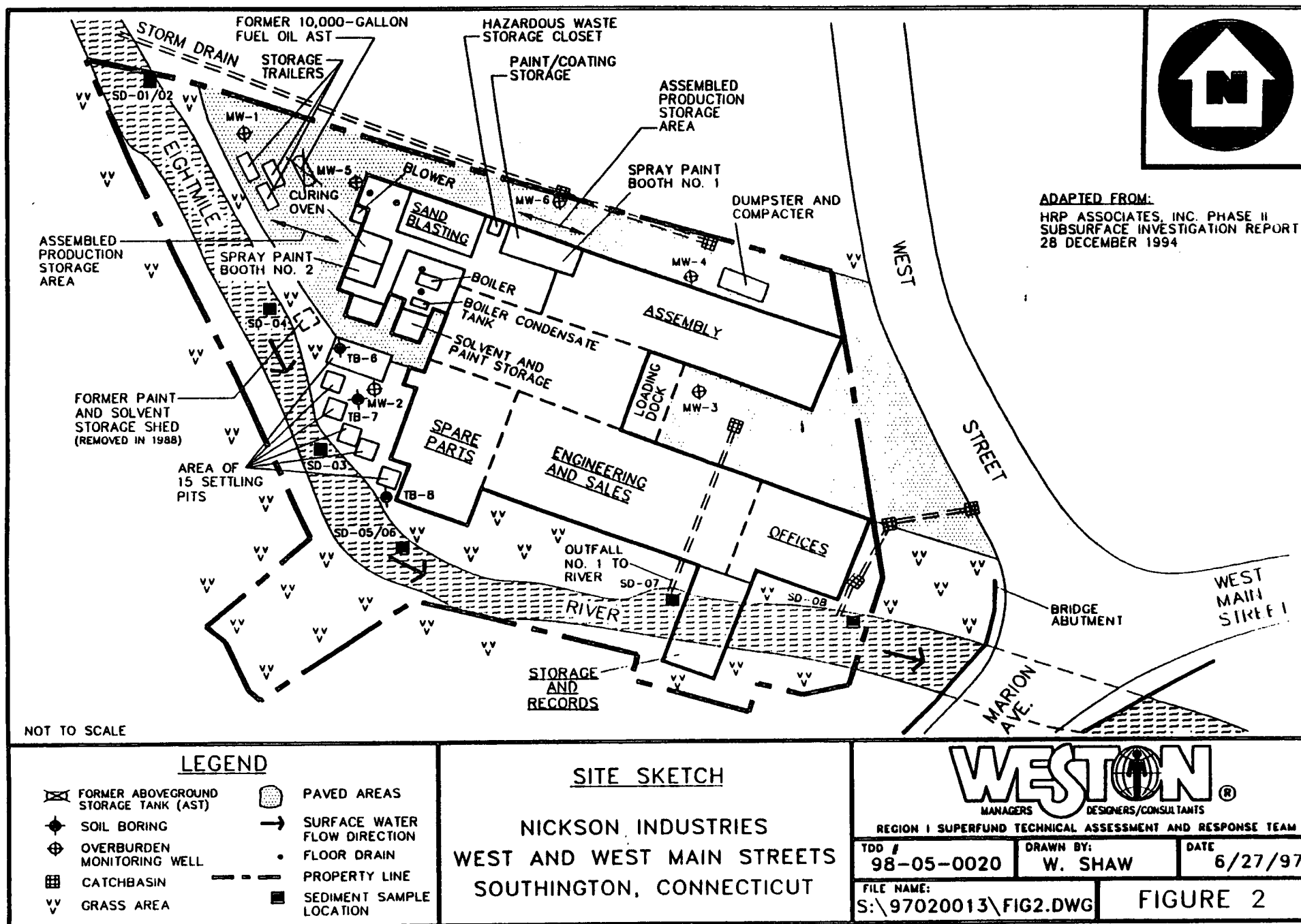
WESTON
 MANAGERS DESIGNERS/CONSULTANTS

REGION 1 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

TDD # 98-02-0020	DRAWN BY: J. CHOW	DATE 4/16/97
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FILE NAME:
 S:\97020013\NICKSON1.DWG

FIGURE 1



ADAPTED FROM:
 HRP ASSOCIATES, INC. PHASE II
 SUBSURFACE INVESTIGATION REPORT
 28 DECEMBER 1994

On 5 June 1997, START personnel conducted an on-site reconnaissance to verify current property conditions [3]. On 3 December 1997, START conducted environmental sampling at the property. The Nickson Industries property contains a single-story building, three temporary storage trailers, asphalt paved areas, and landscaped lawn areas [3]. The on-site building occupies approximately 25,000 square feet (ft²) of the property [2]. No other buildings are located on the Nickson Industries property [3].

U.S. Filter Corporation (U.S. Filter) and its predecessor Penfield, Inc. have operated at the property for the manufacture of water treatment and purification systems since 1982. Approximately 60 full-time personnel are employed on the property by U.S. Filter [3]. START personnel observed the following manufacturing activities at the property: welding, machining, and assembly of water purification vessels; steel bead blasting (cleaning) of assembled units; painting of units; polyvinyl chloride (PVC) coating of units; and wiring of electronic controls. Raw materials were stored and staged in various locations throughout the property. Raw materials included bead blasting grit, paints, paint primer, lacquer thinner, compressed gases for welding, PVC primer, and cutting oils. The materials were staged in designated indoor areas underlain by concrete floor and were noted by START personnel to be in good condition [3].

Solid waste and hazardous waste accumulation areas were observed and noted to be well maintained. Non-hazardous solid wastes generated by U.S. Filter include scrap metal, PVC piping, and miscellaneous wood, plastic, and paper. Hazardous waste, consisting of waste paint, waste paint thinner, and waste hydraulic and cutting oils from machining operations, is stored in 55-gallon drums inside a designated placarded metal closet located in the on-site building. Approximately one drum of waste paint and thinner and one drum of waste oils are generated per year. No staining of interior floors or other potential interior areas of concern were noted [3]. Overall, the interior of the facility was observed by START personnel to be clean and well kept [3].

Exterior portions of the Nickson Industries property were also inspected during the START on-site reconnaissance [3]. The Eightmile River flows north-to-south through the western portion of the property and underneath a portion of the on-site building (Figure 2) [3]. No wetlands were observed along the stretch of the Eightmile River that flows along the property. No terrestrial sensitive environments were observed on the property [3].

Fifteen inactive settling pits were observed in the western portion of the property by START personnel during the on-site reconnaissance (Figure 2) [3]. The interior of the pits could not be observed during the START on-site reconnaissance as the pits were sealed with either a wood or metal cover [3]. Reportedly, the pits are concrete-lined and were filled with sand and gravel in 1982 [3; 4]. The inactive settling pits are arranged in succession leading from the on-site building to the Eightmile River [3]. The settling pits were allegedly utilized for the primary treatment of plating wastewaters prior to discharge to the Eightmile River [3; 4; 6]. The outlines of the settling pits are visible, appear to be approximately equal in size, and each one is approximately 3 feet wide by 3 feet long by 3 feet deep [3; 10]. The depth of the settling pits is based on available file information and could not be confirmed by START personnel as the settling pits are currently sealed.

No stained soils or stressed vegetation were noted during the START on-site reconnaissance. U.S. Filter currently uses exterior portions of the property as a storage and staging area for assembled water treatment vessels prior to final production (Figure 2). Three temporary storage trailers were noted in the northwest portion of the property. The storage trailers stored finished product inventory and miscellaneous non-hazardous raw materials such as PVC piping and bead blasting grit. No underground storage tanks are known to be located on the property or are registered with CT DEP.

No water supply wells, septic systems, or dry wells are known to be located on the Nickson Industries property. The property has been reportedly serviced by public water supply since at least 1911 [4]. The property has been connected to municipal sewer service since at least 1965. Floor drains are reported to be located in the on-site building, but were not observed by START personnel during the on-site reconnaissance [4]. The floor drains are reportedly connected to the sanitary sewer for the building [4]. Several storm drains were observed on the property. Storm drains and roof drains located on the property discharge directly to the Eightmile River [4].

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

The Nickson Industries facility was constructed circa 1850 [4]. Land use of the property prior to 1850 is unknown. The Nickson Industries facility has historically been used by a variety of commercial and manufacturing businesses. Table 1 summarizes the historical occupants of the property based on available file information [4; 6; 7].

Table 1

Historic Property Occupants for Nickson Industries

Former Occupant	Approximate Years of Occupancy	Comments
H.D. Smith Co.	1850 - 1936	Manufactured carriage forgings
Florian Brothers/Auto Specialty Mfg.	1936 - 1942	Unknown business operations
Allied Control Co.	1942 - 1971	Manufactured relays and electronic coils
Nickson Industries	1971 - 1980	Manufactured automobile muffler clamps
Lori Lock Engineering	1980 - 1982	Assembled locks
Penfield/U.S. Filter	1982 - present	Manufactured water treatment equipment

[4; 6; 7]

An inspection of the property by personnel from the State of Connecticut in 1965 documented that the property had been occupied by the Allied Control Co. since 1942 [7]. The inspection noted that relays and solenoid valves were manufactured at the property and that manufacturing processes involved plating, fabricating, assembly, machining, heating, and painting [7]. Wastes generated from plating operations were noted to contain acids, cyanides, alkalis, nickel, copper,

tin, cadmium, chromium, gold, and rhodium. Industrial wastes were noted to be discharged to the Eightmile River and the ground surface [7]. The on-site settling pits were allegedly utilized for an unknown period of time by Allied Control Co. for the primary treatment of plating wastewaters prior to discharge to the Eightmile River [3; 4; 6]. The inactive settling pits are not known or alleged to have been utilized by any other occupants of the property.

An industrial survey of the property by CT DEP in 1977 documented that Nickson Industries had occupied the property since 1971 [8]. The inspection noted that automobile muffler clamps were manufactured at the property and that manufacturing processes involved wire drawing, cutting, thread rolling, bending, and tumbling [8]. No information regarding wastes generated by Nickson Industries was recorded [8].

Lori Lock Engineering occupied the property from 1980 to 1982. Lori Lock Engineering reportedly assembled locks [4]. No information was available detailing the types of wastes generated by Lori Lock Engineering [4].

From 1982 to the present, U.S. Filter and its predecessor Penfield, Inc. have utilized the property for the manufacture of water treatment systems. A 1983 CT DEP Industrial Survey of the property noted that Penfield, Inc. manufactured industrial water filters, demineralizers, and pollution control systems. The survey also noted that manufacturing processes included polymer coating of tanks, painting, welding, machining, hydrostatic testing of tanks, electrical assembly, and sand blasting. The only wastes generated by Penfield, Inc. and observed by CT DEP personnel were methyl ethyl ketone and paint solvents, which were disposed of by evaporation. No off-site disposal of hazardous wastes was documented [9].

On 18 July 1988, NUS/FIT completed a PA of the Nickson Industries property [6]. NUS/FIT conducted an off-site reconnaissance, and no environmental sampling was conducted [6]. NUS/FIT noted the inactive settling pits as the only area of concern based on available file information [6].

On 23 January 1990, HRP Associates, Inc. (HRP) completed a Phase I Environmental Site Contamination (Phase I) Report for the Penfield, Inc. property. HRP summarized known historical background information for the property. HRP also conducted a visual inspection of the property; however, no environmental sampling was performed. HRP noted the inactive settling pits, a former 10,000-gallon fuel oil aboveground storage tank (AST) installed in 1968, and drums of paint waste stored outdoors [10, pp. 14, 33]. A Site Plan map included with the Phase I Report identified a former paint and solvent storage shed of unknown construction located in the western portion of the property which was removed in 1988. The size of the shed appears to have been approximately 15 feet long by 15 feet wide, and no other information was given in the HRP report. HRP also noted the presence of two potential fuel oil fill pipes [indicative of underground storage tanks (USTs)] underneath a steel plate in the facility's boiler room [10, p. 14]. No further information was available to HRP regarding potential USTs. HRP concluded that additional assessment activities including environmental sampling were needed to evaluate the potential on-site contamination.

On 11 November 1994, HRP completed a Phase I Environmental Site Assessment Update (Phase I Update) Report for the Penfield, Inc. property [4]. HRP conducted a visual inspection of the property and updated the findings of the 1990 Phase I Report. HRP noted that the 10,000-gallon fuel oil AST had been decommissioned and removed in 1988. No information was given by HRP regarding the presence of potential fuel oil USTs at the property. HRP noted that no USTs were registered for the facility with CT DEP. No outdoor hazardous materials storage areas were noted by HRP. HRP findings indicated that manufacturing operations at the property were virtually the same as those observed in 1990. HRP concluded that the long industrial history of the property and former waste generation and disposal practices may have resulted in the potential for contamination of on-site soil and groundwater, and additional assessment activities were needed to evaluate potential on-site contamination.

On 28 December 1994, HRP completed a Phase II Subsurface Investigation (Phase II) Report for the Penfield, Inc. property to evaluate the presence and nature of on-site soil and groundwater contamination [5]. As part of the Phase II, HRP advanced eight soil borings, installed five monitoring wells, and sampled soil and groundwater [5]. Soil boring sampling results indicated the presence of trichloroethene (TCE), tetrachloroethene (PCE), cyanide, and metals. Groundwater sampling results indicated the presence of PCE, vinyl chloride, methylene chloride, chloroform, and cadmium at levels above reference values [5]. Soil and groundwater sampling results are discussed in greater detail in the Waste/Source Sampling and Groundwater Pathway sections of this report.

The 15 inactive settling pits were observed by START personnel during the on-site reconnaissance in the western portion of the property (Figure 2) [3]. The settling pits were allegedly utilized for an unknown period of time by Allied Control Co. for the primary treatment of plating wastewaters prior to discharge to the Eightmile River [3; 4; 6]. Allied Control Co. reportedly occupied the property between 1942 and 1971. The inactive settling pits are not known or alleged to have been utilized by any occupants of the property other than Allied Control Co. As mentioned previously, Allied Control Co. is reported to have conducted gold, silver, zinc, and cadmium plating operations on the property during their tenancy [4].

No outdoor hazardous material storage areas were observed by START personnel during the on-site reconnaissance and sampling event. No evidence for the presence of USTs was noted by START personnel; however, a detailed search for the potential fill pipes reported by HRP in the 1990 Phase I Report was not conducted. No other reference to potential USTs was identified in available file information.

Table 2 presents identified structures or areas on the Nickson Industries property that are documented or potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

Table 2**Source Evaluation for Nickson Industries**

Source Area	Containment Factors	Spatial Location
15 Inactive settling pits	Reportedly cement-lined. No other known containment factors. Inactive since approximately 1971.	Western portion of the property.
Indoor hazardous waste storage area	Hazardous wastes currently stored in designated placarded metal closet located indoors.	Northern area of facility.
Former outdoor hazardous waste storage area	No information on containment factors available.	Unknown.
10,000-gallon fuel oil AST	Decommissioned and removed in 1988. No other known containment factors.	Northwestern portion of the property.
Fuel oil USTs	No information on containment factors available.	Underneath the facility near boiler room.
Former paint and solvent storage shed	Shed presumably had a maintained roof. Construction of floor unknown. Removed in 1988.	Western portion of the property.

AST = aboveground storage tank
[3; 4; 6; 7]

UST = underground storage tank

Table 3 summarizes the types of potentially hazardous substances which have been disposed, used, or stored on the Nickson Industries property.

Table 3**Hazardous Waste Quantity for Nickson Industries**

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Plating wastewaters (solvents, acids, metals)	15 settling pits × 27 cubic feet per pit	1942 to 1971	1942 to 1971	Inactive settling pits
Waste paint, thinner, oils	2 drums per year	Unknown to present	Unknown to present	Indoor hazardous waste storage area
Waste paint, thinner, oils	Unknown	Unknown	Unknown	Outdoor hazardous waste storage area
Fuel oil	10,000-gallon AST USTs - unknown size	AST (1968-1988). UST - unknown	AST (1968-1988). UST - unknown	AST, USTs
Paints and solvents	15 feet long × 15 feet wide (footprint of former shed)	Unknown to 1988	Unknown	Former paint and solvent storage shed

AST = aboveground storage tank
[3; 4; 6; 7]

UST = underground storage tank

The Nickson Industries property is located in a primarily commercial and industrial section of Southington. Thirty-seven RCRA facilities are identified by the Resource Conservation and Recovery Information System (RCRIS) as being located in Southington, Connecticut, and an unknown number of these facilities may be located within 1-radial mile of the Nickson Industries property [44]. No RCRA facilities are located on properties adjacent to the Nickson Industries property [44]. Six Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) properties, excluding Nickson Industries, are known to be located within 1-radial mile of the Nickson Industries property [43]. One of the six properties is the National Priorities List (NPL) Old Southington Landfill property (CERCLIS No. CTD980670806). Table 4 summarizes the CERCLIS properties known to be located within 1-radial mile of the Nickson Industries property [43].

Table 4

CERCLIS Properties within 1-Radial Mile of Nickson Industries

CERCLIS Property	Distance/Direction from Nickson Industries	CERCLIS No.
Torrey Crane Company	0.25 miles east	CTD001150390
Nickson Industries	0.3 miles southeast	CTD982191736
A.M. Developers	0.3 miles east	CTD001888973
Angelillo Property	0.75 miles southeast	CTD983888223
Old Southington Landfill	0.75 miles southwest	CTD980670806
Fansteel VR/Wesson	1.0 mile southwest	CTD042310847

CERCLIS = Comprehensive Environmental Response, Compensation, and Liability Information System.

[43]

WASTE/SOURCE SAMPLING

As part of the Phase II, HRP advanced and sampled eight soil borings (MW-1 through MW-5, TB-6 through TB-8) to evaluate the presence and nature of on-site soil contamination [5]. HRP submitted soil samples for halogenated volatile organic compounds (VOCs) (EPA Method 8010), aromatic VOCs (EPA Method 8020), Toxicity Characteristic Leachate Procedure (TCLP) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), and total cyanide analyses [5]. No reference, duplicate, blank, or other quality assurance/quality control (QA/QC) samples were collected.

Soil boring sampling results indicated the presence of TCE at 679 part per billion (ppb), PCE at 81 ppb, and cyanide at 17 ppb [5]. The metals, barium at 0.8 parts per million (ppm), cadmium at 41.2 ppm, chromium at 0.14 ppm, and lead at 1.39 ppm, were detected and provide an indication of leachability and not of total metal concentrations [5].

Table 5 is a summary of substances detected in the soil boring samples collected by HRP on 19 and 20 September 1994 [5]. No reference sample location was designated by HRP, and no appropriate reference sample was identified by START for comparative purposes. The substances detected in the HRP soil boring samples are evaluated as being attributable to the Nickson Industries property and are consistent with historical on-site operations.

Table 5

**Summary of Analytical Results
Soil Sample Analysis for Nickson Industries
Samples Collected by HRP Associates, Inc. on 19 and 20 September 1994**

Sample Location and Depth	Substance	Concentration
MW-1 (0-2 feet)	Cadmium	0.050 ppm
	Trichloroethene	366 ppb
MW-2 (5-7 feet)	Cadmium	0.035 ppm
	Trichloroethene	40 ppb
MW-3 (5-7 feet)	Barium	0.5 ppm
MW-4 (1-3 feet)	Cadmium	0.009 ppm
	Trichloroethene	203 ppb
MW-4 (5-7 feet)	Barium	0.5 ppm
	Trichloroethene	25 ppb
MW-5 (2-3 feet)	Barium	0.5 ppm
	Cadmium	1.19 ppm
	Chromium	0.14 ppm
	Cyanide	17 ppm
	Trichloroethene	679 ppb
	Tetrachloroethene	81 ppb
MW-5 (5-7 feet)	Cadmium	0.630 ppm
	Chromium	0.12 ppm
	Cyanide	15 ppm
	Trichloroethene	63 ppb
TB-7 (1-2 feet)	Cadmium	0.730 ppm
	Lead	0.043 ppm

Table 5

**Summary of Analytical Results
Soil Sample Analysis for Nickson Industries
Samples Collected by HRP Associates, Inc. on 19 and 20 September 1994
(Concluded)**

Sample Location and Depth	Substance	Concentration
TB-7 (5 feet)	Barium	0.8 ppm
	Cadmium	41.2 ppm
	Lead	1.39 ppm
	Trichloroethene	209 ppb
	Tetrachloroethene	48 ppb
TB-8 (2-4 feet)	Cadmium	0.030 ppm
	Lead	0.012 ppm

ppm = parts per million

ppb = parts per billion

[5]

START did not perform waste/source sampling as part of the SI. No other waste/source sampling activities are known to have been conducted for the Nickson Industries property aside from those discussed above.

GROUNDWATER PATHWAY

HRP advanced eight soil borings on 19 and 20 September 1994 at the Nickson Industries property [5]. Soil borings were advanced to a maximum depth of 13 feet below ground surface (bgs). Boring logs from the HRP soil borings indicated that fill material was present to depths ranging from 0 to approximately 5 feet bgs [5]. The composition of observed fill material consisted of fine-to-coarse sand, some fine-to-coarse gravel, and trace slag and concrete. Native material consisted of red-brown fine-to-coarse sand, some silt, some fine-to-coarse gravel, and trace cobbles [5]. Bedrock was believed by HRP to be encountered during soil boring activities at depths ranging from 4 to 9 feet bgs. The depth to groundwater on the Nickson Industries property was observed by HRP to be 3 to 5 feet bgs [5]. Groundwater contour maps developed by HRP indicate that on-site groundwater flows in a southwesterly direction toward the Eightmile River [5].

The surficial geology in the vicinity of the Nickson Industries property consists of postglacial Quaternary channel and overbank floodplain deposits [11]. These deposits consist of alluvial silt and sand containing organic matter, which are similar to deposits found in the vicinity of most streams and tributaries in the area [11]. The depth to bedrock in the vicinity of the Nickson Industries property is approximately 10 feet bgs based on available published geologic maps [12].

The bedrock geology in the vicinity of the Nickson Industries property has been mapped as the Upper Triassic New Haven Arkose [13]. The New Haven Arkose consists of interbedded grayish-orange-pink to very pale orange conglomeratic arkose and grayish-red to dark-reddish-brown siltstone [13]. No bedrock formation mapped within 4-radial miles of the Nickson Industries property is known to exhibit karst characteristics.

The groundwater beneath the property and in the immediate vicinity is listed by CT DEP as Class GB/GA groundwater [14]. According to CT DEP, Class GB/GA groundwaters may not be suitable for direct human consumption without treatment due to waste discharges, spills or leaks of chemicals, or land use impacts [14].

All or part of the following Connecticut cities or towns are located within 4-radial miles of the Nickson Industries property: Southington (population 38,212); Cheshire (population 23,536); Wolcott (population 13,573); and Meriden (population 58,305) [15; 16; 17; 18; 19].

The Southington Water Department (SWD) provides drinking water to approximately 38,000 residents in Southington [20]. The SWD utilizes a blended municipal water distribution system that is comprised of a network of 10 supply wells (Well Nos. 1a through 9 and the Patton Brook well). All of these wells are screened in overburden, between 50 and 100 feet bgs, and all except Well No. 9 are located within 4-radial miles of the Nickson Industries property [20]. Low levels of TCE have been detected in Well No. 2, located an estimated 1.7 miles southeast of the Nickson Industries property [21; 22]. Since 1988, Well No. 2 has utilized an air stripper to purify its water. The source of contamination to Well No. 2 is unknown.

Three of the wells (Well Nos. 4, 5, and 6) are inactive and were closed in 1980 due to the presence of elevated concentrations of TCE and PCE [21; 22; 23]. Well Nos. 4 and 6 are located an estimated 2.1 and 2.2 miles, respectively, northeast of the Nickson Industries property. The Solvents Recovery Service of New England property (CERCLIS No. 009717604), an NPL property located approximately 2.5 miles north-northeast of the Nickson Industries property, was identified in 1980 as being responsible for the contamination observed in Well Nos. 4 and 6 [23; 45]. Well No. 5 is located an estimated 0.8 miles southeast of the Nickson Industries property. The Old Southington Landfill NPL property was identified in 1984 as being responsible for the contamination observed in Well No. 5 [23; 46]. The seven active supply wells maintained by SWD are estimated by START to contribute equally, and each well serves approximately 5,429 people.

The South Central Connecticut Regional Water Authority (SCCRWA) maintains a 110-foot deep overburden well located 3.5 miles south-southeast of the Nickson Industries property [20]. The SCCRWA well provides water to an estimated 9,300 people in Cheshire, and the water is not blended with other sources prior to distribution [20]. TCE was detected in the SCCRWA well in 1979, and 1,2-dichloropropane, 1,1,1-trichloroethane, and PCE were detected in the SCCRWA well in 1983 [20]. Since 1983, the SCCRWA well has utilized an air stripper to purify the water. The source of contamination in the SCCRWA well is unknown.

In addition, there are two community water supplies located in Southington: the Briarwood College well and the Jensen's Inc. wells [20]. The Briarwood College well is located 3.2 miles northwest of the Nickson Industries property and serves approximately 375 people. Jensen's Inc., also known as Forest Hill Mobile Home Park, maintains a well that is located 3.5 miles north of the Nickson Industries property and which serves approximately 380 people.

No other public drinking water wells are located within 4-radial miles of the Nickson Industries property. An estimated 42,629 people are served by public groundwater supply sources within 4-radial miles of the Nickson Industries property [20]. Table 6 summarizes public groundwater drinking water supply sources within 4-radial miles of the Nickson Industries property.

Table 6
Public Groundwater Supply Sources within 4-Radial Miles of
Nickson Industries

Distance/Direction from Nickson Industries	Source Name	Location of Source ^a	Estimated Population Served	Source Type ^b
0.8 miles southeast	SWD, Well No. 5 (inactive)	Southington	0	Overburden
1.4 miles northeast	SWD, Well No. 1a	Southington	5,429	Overburden
1.9 miles southeast	SWD, Well No. 2	Southington	5,429	Overburden
1.9 miles northeast	SWD, Well No. 3	Southington	5,429	Overburden
2.1 miles east	SWD, Well No. 8	Southington	5,429	Overburden
2.1 miles northeast	SWD, Well No. 4 (inactive)	Southington	0	Overburden
2.2 miles northeast	SWD, Well No. 6 (inactive)	Southington	0	Overburden
2.3 miles east	SWD, Well No. 7	Southington	5,429	Overburden
3.2 miles northwest	Briarwood College	Southington	375	Overburden
3.5 miles south-southeast	SCCRWA	Cheshire	9,300	Overburden
3.5 miles northeast	Patton Brook (SWD)	Southington	5,429	Overburden
3.5 miles north	Jensen's Inc.	Southington	380	Overburden

^aIndicates Town in which well is located.

^bOverburden, Bedrock, or Unknown.

SWD = Southington Water District.

SCCRWA = South Central Connecticut Regional Water Authority.

[20]

The area of Southington where the Nickson Industries property is located is serviced by municipal water supply [24]. The location of the nearest private well user was not known by Town of

Southington representatives, but neighborhoods where undocumented private well users may exist are believed by the Southington Board of Health to be located within 0.25-radial miles of the property [25].

Private groundwater supplies located within 4-radial miles of the Nickson Industries property were estimated using equal distribution calculations of U.S. Census CENTRACTS data identifying population households, and private water wells for "Block Groups" which lie within or partially within individual radial distance rings measured from the Nickson Industries property [20]. An estimated 10,744 people are served by private groundwater sources within 4-radial miles of the Nickson Industries property [20]. Table 7 summarizes drinking water populations served by groundwater sources within 4-radial miles of the Nickson Industries property.

Table 7

**Estimated Drinking Water Populations Served by Groundwater Sources
Within 4-Radial Miles of Nickson Industries**

Radial Distance from Nickson Industries (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
≥ 0.00 to 0.25	9	0	9
> 0.25 to 0.50	30	0	30
> 0.50 to 1.00	176	0	176
> 1.00 to 2.00	955	16,287	17,242
> 2.00 to 3.00	2,964	10,858	13,822
> 3.00 to 4.00	6,610	15,484	22,094
TOTAL	10,744	42,629	53,373

[20]

On 19 and 20 September 1994, HRP installed five monitoring wells (MW-1 through MW-5) on the Nickson Industries property as part of their Phase II assessment (Figure 2) [5]. On 30 September 1994, HRP sampled the five monitoring wells and surveyed the water level elevations in the wells to develop a groundwater flow contour map [5]. HRP determined that groundwater beneath the property flows in a southwesterly direction towards the Eightmile River [5]. Based on the groundwater contour map, monitoring wells MW-1 and MW-4 were identified by HRP as upgradient reference wells [5]. The HRP groundwater samples collected on 30 September 1994 were submitted for halogenated and aromatic VOCs (EPA Methods 8010 and 8020, respectively), total cyanide, and TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) analyses [5]. No trip blank, bottle blank, field duplicate or other QA/QC samples are known to have been collected by HRP on 30 September 1994.

During the START on-site reconnaissance, the five HRP monitoring wells were located, and a sixth monitoring well (MW-6) was found along the northern perimeter of the property (Figure 2). No information was available from the property owner representatives regarding the date of installation and whether any sampling data were available for this additional well.

Table 8 is a summary of substances detected in the HRP groundwater samples collected on 30 September 1994. For each sample location, a compound or element is listed if it was detected at three times or greater than the highest reference sample concentration (MW-1 or MW-4). However, if the compound or element was not detected in either reference sample, the reference samples' method detection limit was used as the reference value. These compounds or elements are listed if they occurred at a value equal to or greater than the reference samples' method detection limit and are designated by their approximate relative concentration above these values.

Table 8

**Summary of Analytical Results,
Groundwater Sample Analysis for Nickson Industries
Groundwater Samples Collected by HRP Associates, Inc. on 30 September 1994**

Sample Location No.	Substance	Concentration	Reference Concentration *	Comments
MW-2	Vinyl Chloride	10 ppb	2 U ppb	5 × MDL
	Tetrachloroethene	4 ppb	1 U ppb	4 × MDL
MW-3	Tetrachloroethene	4 ppb	1 U ppb	4 × MDL
MW-5	Tetrachloroethene	57 ppb	1 U ppb	57 × MDL
	Methylene Chloride	7 ppb	1 U ppb	7 × MDL
	Chloroform	4 ppb	1 U ppb	4 × MDL
	Cadmium	0.04 ppb	0.006 ppb	6.7 × REF

- U = The compound was analyzed for, but was not detected. The associated numerical value is the method detection limit.
- REF = Reference sample concentration.
- MDL = Method detection limit.
- ppb = Parts per billion.
- * = Two reference groundwater sampling locations were identified, MW-1 and MW-4. The higher concentration of a given substance between the two reference samples was used as the reference sample concentration.

[5]

The HRP groundwater sampling results indicated the presence of vinyl chloride, PCE, methylene chloride, chloroform, and cadmium above reference values in downgradient wells [5]. However, elevated contaminant concentrations were also detected in the two reference locations. The

substances trans-1,2-dichloroethene in MW-1 at 16 ppb, TCE in MW-1 at 118 ppb, and total cyanide in MW-4 at 0.3 ppb were detected. As a result, HRP concluded that off-site sources may have contributed to the levels observed in the on-site reference and downgradient wells [5]. No remedial actions are known to have been conducted at the Nickson Industries property.

No other groundwater sampling activities are known to have been conducted at the Nickson Industries property. HRP groundwater sampling results adequately document the nature of groundwater contaminants for the purpose of this evaluation. Although a full Contract Laboratory Program (CLP) target analyte list and target compound list of analyses were not conducted, the HRP analyses were appropriately selected based on the suspected contaminants of concern.

Contamination of public drinking water supply wells within 4-radial miles of the Nickson Industries property has been documented. However, this contamination is not assumed to be attributable Nickson Industries property. The Eightmile River, located adjacent to the property, is a likely discharge point for groundwater based on hydrogeologic information which documents that on-site groundwater flows southwesterly towards the river. Known contaminated public drinking water supply wells are located southeast and northeast of the property.

START did not perform groundwater sampling as part of the SI. No other groundwater sampling activities are known to have been conducted for the Nickson Industries property aside from those discussed above. Based on the results of previous sampling events, a release to groundwater from on-site sources has been documented; however, no impacts to nearby drinking water sources are known or suspected. To date, no actions have been taken to mitigate the release to groundwater.

SURFACE WATER PATHWAY

The topography of the Nickson Industries property is flat with a slight engineered slope to the south. Approximately 75% of the property is covered with impermeable material (i.e., building footprint and asphalt paved areas) [3]. As a result, precipitation falling on the property is likely to migrate off site by overland flow rather than infiltrate into the subsurface. Runoff from the property travels south-southwest into the Eightmile River, which bounds the western perimeter of the property.

Six storm drains are located on the property. One storm drain collects runoff from the loading dock area of the facility along the eastern portion of the property and discharges it to the Eightmile River (Figure 2). Two storm drains collect runoff from the northern portion of the property and discharge to the Eightmile River. Three storm drains collect runoff from the southeastern portion of the property and West Street, and they also discharge to the Eightmile River. Runoff of precipitation falling on the area of the inactive settling pits flows directly into the Eightmile River as no storm drains are located in this portion of the property. No stained soils or stressed vegetation were noted by START personnel along the bank of the Eightmile River during the on-site reconnaissance [3].

The most upstream probable point of entry (PPE) into surface water for overland flow originating from the property is the northwest corner of the property where the most upstream point of the

stretch of Eightmile River bordering the property is located (Figure 2) [3]. From the PPE, the Eightmile River flows in a southeasterly direction for approximately 0.4 miles until it reaches the Quinnipiac River [27; 28]. The flow rate of the Eightmile River at the PPE has been estimated by START to be 24 cubic feet per second (cfs) based on the drainage basin area of the river upstream of the PPE [37]. The Quinnipiac River makes up the remaining 14.6 miles of the 15-mile downstream pathway [27; 28]. The 15-mile downstream pathway ends on the Quinnipiac River in North Haven, Connecticut in the vicinity of Sleeping Giant State Park [27; 28].

Two U.S. Geological Survey (USGS) stream gaging stations are located near or along the 15-mile surface water pathway. USGS gaging station No. 01195490 is on the Quinnipiac River approximately 1 mile upstream of where the Eightmile River flows into the Quinnipiac River and has recorded a long term mean annual flow rate of 35.1 cfs [36]. USGS gaging station No. 01196500 is located along the Quinnipiac River approximately 13 miles downstream of the PPE and has recorded a long term mean annual flow rate of 215 cfs [36]. Based on extrapolation, the mean annual flow rate of the Quinnipiac River where the Eightmile River flows into the Quinnipiac River is estimated by START to be 50 cfs, and at the terminus of the 15-mile surface water pathway to be 240 cfs (Figure 3) [37].

For the purpose of this report, the Quinnipiac River is divided into two sections. One stretch of the Quinnipiac River begins where the Eightmile River flows into the Quinnipiac River and has a reach of approximately 4 miles. At the end of this stretch, the flow rate is estimated to be 100 cfs based on extrapolation. The second stretch of the Quinnipiac River begins approximately 4 miles downstream of where the Eightmile River flows into the Quinnipiac River and ends at the downstream surface water pathway terminus. Table 9 summarizes the surface water bodies present along the 15-mile downstream pathway from Nickson Industries [27; 28; 30; 37]. Figure 3 depicts the 15-mile downstream pathway.

Table 9

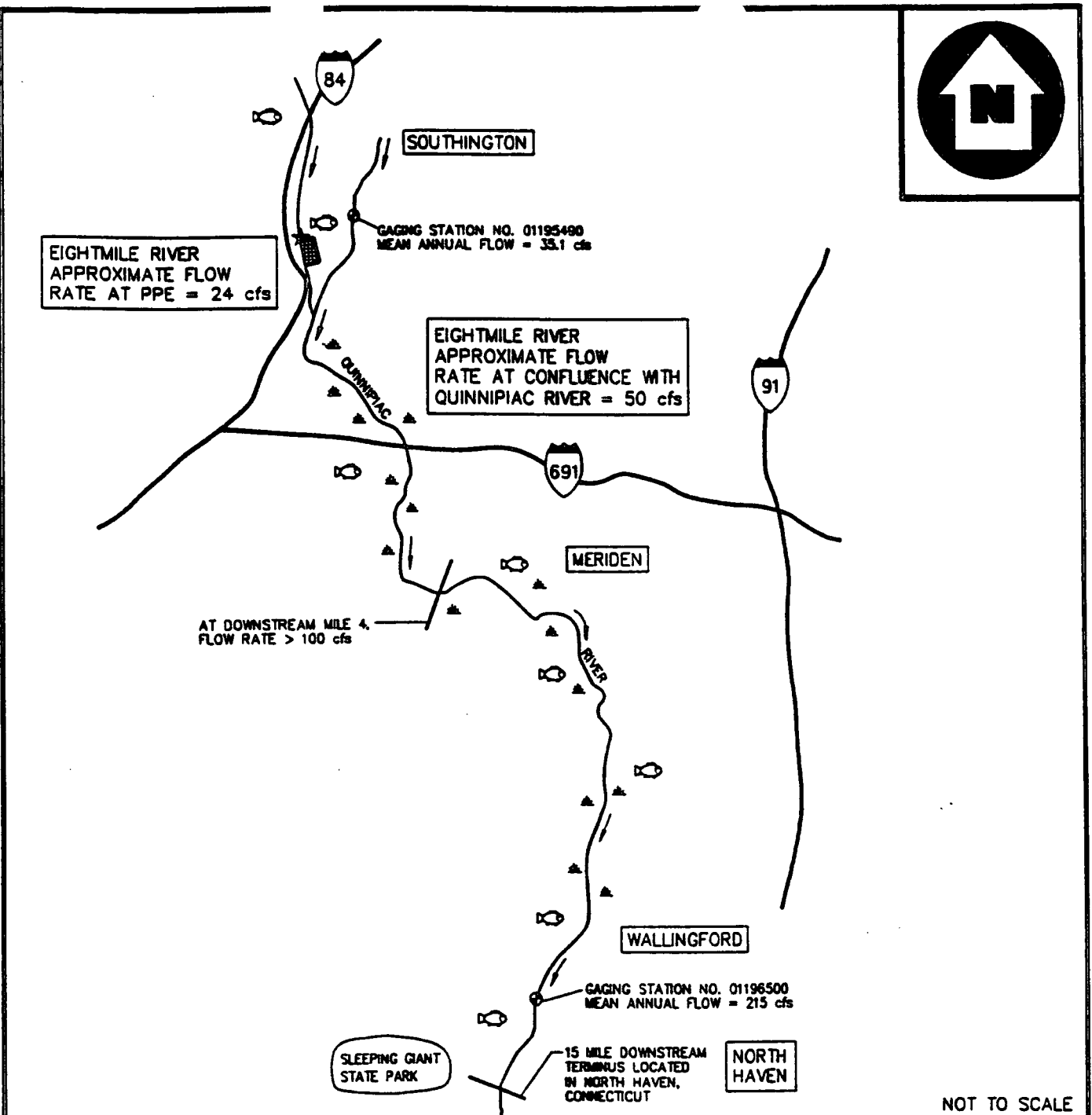
Surface Water Bodies Along the 15-Mile Downstream Pathway from Nickson Industries

Surface Water Body	Descriptor ^a	Length of Reach (miles)	Flow Characteristics (cfs) ^b	Length of Wetland Frontage (miles)
Eightmile River	Small to moderate	0.4	24 to 50	0
Quinnipiac River	Small to moderate	4	50 to 100	2
Quinnipiac River	Moderate to large	10.6	> 100 to 240	3.5

- ^a Minimal stream < 10 cfs. Small to moderate stream 10-100 cfs. Moderate to large stream > 100-1,000 cfs. Large stream to river > 1,000-10,000 cfs. Large river > 10,000-100,000 cfs. Very large river > 100,000 cfs. Coastal tidal waters (flow not applicable). Shallow ocean zone or Great Lake (flow not applicable). Moderate depth ocean zone or Great Lake (flow not applicable). Deep ocean zone or Great Lake (flow not applicable). Three-mile mixing zone in quiet flowing river 10 cfs or greater.

- ^b Cubic feet per second.

[27; 28; 30; 37]



LEGEND

- ▲ WETLANDS
- ★ PROBABLE POINT OF ENTRY TO SURFACE WATER
- 🐟 FISHERY

- FLOW DIRECTION
- cfs CUBIC FEET PER SECOND
- ▭ PROPERTY

PPE PROBABLE POINT OF ENTRY

SOURCE: 30' X 60' U.S.G.S. QUADRANGLE(S): HARTFORD, CT 1983
NEW HAVEN, CT 1983

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DATE
9/30/97

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FIGURE 3

There are no known surface water intakes used for public drinking water supplies along the 15-mile downstream pathway from the Nickson property [20]. Portions of the Nickson Industries property are located within the 100-year and 500-year floodplains of the Eightmile River [38]. The Eightmile and Quinnipiac Rivers are listed by CT DEP as Class B waterways [14]. Class B waters are designated for recreational use, fish and wildlife habitats, agricultural and industrial supply, and other legitimate uses including navigation [14]. Although no evidence of fishing was observed along the stretch of the Eightmile River adjacent to the Nickson Industries property, the nearest fishery is considered to be the Eightmile River.

Two State-endangered species habitats are known to be located along the 15-mile downstream pathway from the Nickson Industries property [40]. Available information does not indicate where these habitats are located along the pathway. No evidence of these habitats was observed during the START on-site reconnaissance or sampling event, and as such, these habitats are presumed to exist along the Quinnipiac River. There are approximately 5.5 miles of wetland frontage along the 15-mile downstream surface water pathway [40]. According to National Wetland Inventory maps, no wetlands are located along the Eightmile River downstream of Nickson Industries. The nearest wetlands are located approximately 0.5 miles downstream of the Nickson Industries PPE along the Quinnipiac River [31]. Table 10 summarizes sensitive environments located along the Nickson Industries property 15-mile downstream pathway.

Table 10

**Sensitive Environments Along the 15-Mile Downstream Pathway from
Nickson Industries**

Sensitive Environment Name	Sensitive Environment Type	Surface Water Body	Downstream Distance from PPE (miles)	Flow Rate at Environment (cfs) ^a
Clean Water Act	Clean Water Act	Eightmile River	0	24
Wetlands	Wetlands	Quinnipiac River	0.5 to 4.0	50 to 100
Two State-endangered species	State-endangered species habitats	Quinnipiac River	0.0 to 4.0	50 to 100
Wetlands	Wetlands	Quinnipiac River	4.0 to 15.0	> 100 to 240

^a Cubic feet per second

PPE = Probable Point of Entry

[31; 32; 33; 34; 36; 40]

On 3 December 1997, START personnel collected eight sediment samples (SD-01 through SD-08) along the Eightmile River to evaluate whether a release to the surface water pathway has occurred and whether any targets have been impacted. At the request of the property owner, samples collected by START were split, with the second set of samples provided to a representative of HRP, environmental consultants for the property owner, along with a sampling location plan. At

the end of the sampling event, a chain-of-custody was completed to document the transfer of the samples to HRP

Reference sample SD-01/SD-02 was collected from an area immediately upstream of the most upstream PPE location. Sediment sample SD-03 was collected approximately 200 feet downstream of the PPE and adjacent to the inactive settling pits. SD-04 was collected approximately 150 feet downstream of the PPE and adjacent to active areas of the on-site facility. Sediment sample SD-05/SD-06 was collected approximately 255 feet downstream of the PPE and just downstream of the inactive settling pits. Sediment sample SD-07 was collected approximately 345 feet downstream of the PPE and downstream of Outfall Pipe No. 1. Sediment sample SD-08 was collected immediately upstream of the southeast property boundary, but downstream of the PPE, outfall pipes, and inactive settling pits. START sediment sample locations are summarized in Table 11 and depicted on Figure 2.

Table 11

**Sample Summary: Nickson Industries
Samples Collected by START on 3 December 1997**

Sample Location No.	Traffic Report No.	Time (hrs)	Remarks	Sample Depth	Sample Source
MATRIX: Sediment					
SD-01	DAFH39	1245	Grab	3-12 inches	Grab sample collected immediately upstream of most upstream PPE location, to establish reference conditions. Material is reddish-brown, gravelly, fine-to-coarse sand. Temperature = 6° C, pH = 6.5, conductivity = 125 µmhos.
SD-02	DAFH40	1245	Grab	3-12 inches	Duplicate sample of SD-01, collected for quality control (metals only).
SD-03 (MS/MSD)	DAFH41	1130	Grab	3-12 inches	Grab sample collected from approximately 200 feet downstream of most upstream PPE location and adjacent to inactive settling pits. Material is reddish-brown, silty, gravelly, fine-to-coarse sand. Temperature = 6° C, pH = 7, conductivity = 130 µmhos.
SD-04	DAFH42	1230	Grab	3-12 inches	Grab sample collected from approximately 150 feet downstream of most upstream PPE location and adjacent to active areas of on-site facility. Material is reddish-brown, fine-to-coarse sand and silt. Temperature = 6° C, pH = 6.5, conductivity = 125 µmhos.

Table 11

**Sample Summary: Nickson Industries
Samples Collected by START on 3 December 1997
(Concluded)**

Sample Location No.	Traffic Report No.	Time (hrs)	Remarks	Sample Depth	Sample Source
SD-05	DAFH43	1100	Grab	3-12 inches	Grab sample collected approximately 255 feet downstream of most upstream PPE location and adjacent to inactive settling pits. Material is reddish-brown, silty, gravelly sand, trace organics. No odors or stains noted. Temperature = 6° C, pH = 6.5, conductivity = 130 μ mhos.
SD-06	DAFH44	1100	Grab	3-12 inches	Duplicate of SD-05, for quality control purposes
SD-07	DAFH45	1035	Grab	3-12 inches	Grab sample collected from approximately 345 feet downstream of most upstream PPE location, adjacent to outflow pipe. Material is reddish-brown, silty, gravelly sand. No odors or stains noted. Temperature = 4° C, pH = 7, conductivity = 120 μ mhos.
SD-08	DAFH56	1000	Grab	3-12 inches	Grab sample collected immediately upstream of the southeast property boundary, downstream of PPE, downstream of inactive settling pits and catchbasin outfall pipe. Material is gray, silty sand. Temperature = 5° C, pH = 7, conductivity = 130 μ mhos.
MATRIX: Aqueous					
RB-01	DAFH47	1200	Grab	NA	Sediment sampling equipment rinsate blank sample, collected for quality control.
TB-01	DAFH48	0730	Grab	NA	Trip blank collected for quality control.

MS/MSD = Matrix Spike/Matrix Spike Duplicate.

PPE = Probable point of entry.

NA = Not applicable.

° C = Degrees Celsius.

μ mhos = Micromilliohms per centimeter.

[3; 50; 51]

Table 12 is a summary of organic compounds and inorganic elements detected through delivery of analytical services (DAS) analyses of START sediment samples. For each sample location, a compound or element is listed if it is detected at three times or greater than the designated reference sample's concentration. However, if the compound or element is not detected in the reference sample, the reference sample's sample quantitation limit (SQL) (for organic analyses)

or sample detection limit (SDL) (for inorganic analyses) is used as the reference value. These compounds or elements are listed if they occurred at a value equal to or greater than the reference sample's SQL or SDL and are designated by their approximate relative concentration above these values.

Table 12

**Summary of Analytical Results
Sediment Sample Analysis for Nickson Industries**

Sample Location	Compound/Element	Sample Concentration	Reference Concentration	Comments
SD-03 (DAFH41)	VOCs			
	1,2-Dichloroethene	26 ppb	11 U ppb	2.4 × SQL
	Trichloroethene	31 J ppb	11 U ppb	2.8 × SQL
	INORGANICS			
	Antimony	0.67 J ppm	0.23 UJ ppm	2.9 × SDL
	Arsenic	7.9 J ppm	2.4 U ppm	3.3 × SDL
	Cadmium	37.9 ppm	0.39 ppm	97.2 × REF
	Chromium	74.1 J ppm	7.8 J ppm	9.5 × REF
	Copper	1,780 J ppm	20.8 J ppm	85.6 × REF
	Nickel	435 J ppm	10.1 J ppm	43.1 × REF
	Selenium	2.1 J ppm	0.49 J ppm	4.3 × REF
	Silver	0.64 ppm	0.12 U ppm	5.3 × SDL
	Zinc	610 J ppm	68.1 J ppm	9.0 × REF
SD-05 (DAFH43)	SVOCs			
	Phenanthrene	700 ppb	110 J ppb	6.4 × REF
	Fluoranthene	770 J ppb	370 U ppb	2.1 × SQL
	Pyrene	770 J ppb	120 J ppb	6.4 × REF
	Benzo(a)anthracene	380 J ppb	50 J ppb	7.6 × REF
	Chrysene	480 ppb	82 J ppb	5.9 × REF
	Benzo(b)fluoranthene	330 J ppb	56 J ppb	5.9 × REF
	Benzo(k)fluoranthene	380 J ppb	64 J ppb	5.9 × REF

Table 12

Summary of Analytical Results
Sediment Sample Analysis for Nickson Industries
(Continued)

Sample Location	Compound/Element	Sample Concentration	Reference Concentration	Comments
SD-05 (DAFH43) (concluded)	Benzo(a)pyrene	370 J ppb	56 J ppb	6.6 × REF
	Indeno(1,2,3-cd)pyrene	250 J ppb	45 J ppb	5.6 × REF
	Benzo(g,h,i)perylene	220 J ppb	46 J ppb	4.8 × REF
	INORGANICS			
	Cadmium	2.9 ppm	0.39 ppm	7.4 × REF
SD-06 (DAFH44)	VOCs			
	1,2-Dichloroethene	24 J ppb	11 U ppb	2.2 × SQL
	INORGANICS			
	Antimony	2.6 J ppm	0.23 UJ ppm	11.3 × SDL
	Cadmium	4.3 ppm	0.39 ppm	11.0 × REF
	Lead	315 J ppm	23.6 J ppm	13.3 × REF
SD-07 (DAFH45)	INORGANICS			
	Antimony	0.26 J ppm	0.23 UJ ppm	1.1 × SDL
SD-08 (DAFH46)	SVOCs			
	Phenanthrene	1,300 ppb	110 J ppb	11.8 × REF
	Fluoranthene	1,800 ppb	370 U ppb	4.9 × SQL
	Pyrene	1,500 ppb	120 J ppb	12.5 × REF
	Benzo(a)anthracene	740 ppb	50 J ppb	14.8 × REF
	Chrysene	950 ppb	82 J ppb	11.6 × REF
	Benzo(b)fluoranthene	700 ppb	56 J ppb	12.5 × REF
	Benzo(k)fluoranthene	770 ppb	64 J ppb	12.0 × REF
	Benzo(a)pyrene	730 ppb	56 J ppb	13.0 × REF

Table 12

**Summary of Analytical Results
Sediment Sample Analysis for Nickson Industries
(Concluded)**

Sample Location	Compound/ Element	Sample Concentration	Reference Concentration	Comments
SD-08 (DAFH46) (concluded)	Indeno(1,2,3-cd)pyrene	490 ppb	45 J ppb	10.9 × REF
	Benzo(g,h,i)perylene	430 ppb	46 J ppb	9.3 × REF
	PESTICIDES/PCBs			
	Heptachlor epoxide	30 J ppb	9.4 U ppb	3.2 × SQL

REF = Reference value.
J = Quantitation is approximate due to limitations identified during the quality control review.
UJ = The reported quantitation limits are qualified estimated.
U = Indicates the compound was analyzed for but not detected and reports the detection value.
ppb = Parts per billion.
ppm = Parts per million.
PCBs = Polychlorinated biphenyls.
VOCs = Volatile organic compounds.
SVOCs = Semivolatile organic compounds.
SQL = Sample quantitation limit.
SDL = Sample detection limit.

[50; 51]

Complete analytical results of START sediment samples including quantitation and detection limits are presented in Attachment A. Sample results quantified with a "J" on analytical tables are considered approximate because of limitations identified during data validation. In addition, organic sample results reported at concentrations below quantitation limits and confirmed by mass spectrometry are also qualified by a "J" and considered approximate.

Elevated concentrations of two VOCs were reported in two START sediment samples. 1,2-Dichloroethene was detected at a maximum concentration of 26 ppb, and TCE at 31 J ppb. The presence of these VOCs may be attributable to the Nickson Industries property based on the presence of similar VOCs detected in previous on-site soil and groundwater sampling events.

Elevated concentrations of 10 semivolatile organic compounds (SVOCs) were reported in two START sediment samples. SVOCs were detected up to a concentration of 1,800 ppb. The presence of SVOCs may be attributable to the Nickson Industries property. Analyses for SVOCs have not been conducted in previous on-site sampling events.

An elevated concentration of one pesticide was reported in one START sediment sample. Heptachlor epoxide was detected at a concentration of 30 J ppb. The presence of this pesticide

is not consistent with historic on-site activities and may be due to past use and application of pesticides in the area, and will therefore not be attributed to the Nickson Industries property.

Elevated concentrations of 10 inorganics were reported in four START sediment samples. Inorganics were detected up to a concentration of 1,780 J ppb. The presence of inorganics may be attributable to the Nickson Industries property based on the presence of similar inorganics detected in previous on-site soil and groundwater sampling events, and is consistent with historic on-site activities. Complete analytical results of START sediment samples including quantitation and detection limits are presented in Attachment A.

START performed surface water pathway sampling as part of the SI. No other surface water pathway sampling is known to have been conducted for the Nickson Industries property. Based on the START analytical results, a release of hazardous substances to the Eightmile River from on-site sources appears to have occurred. As a result, a fishery and a Clean Water Act-protected water body have been impacted. No other sensitive environments are known or suspected to have been impacted. To date, no known actions have been taken to address the release to the Eightmile River.

SOIL EXPOSURE PATHWAY

Approximately 60 full-time personnel are employed on the property by U.S. Filter [3]. The nearest residence is located approximately 350 feet northeast of the Nickson Industries property at 29 West Street [3]. No known schools or day-care facilities are located within 200 feet of the property. Pedestrian and vehicular access to the Nickson Industries property is not restricted; however, it is limited by the adjacent Eightmile River (Figure 2). The property is not used for public recreation.

The Nickson Industries property is zoned industrial and is located in a primarily commercial and industrial section of Southington. The property is bound by local businesses to the north; West Street and undeveloped commercial property to the east; and the Eightmile River, local businesses, and Interstate 84 to the south and west (Figure 2) [3]. No stained soils or stressed vegetation were noted during the START on-site reconnaissance or sampling event.

Fifteen inactive settling pits are located in the western portion of the property (Figure 2) [3]. The settling pits were allegedly utilized for an unknown period of time between 1942 and 1971 for the primary treatment of plating wastewaters prior to discharge to the Eightmile River [3; 4; 6]. The interior of the pits could not be inspected by START personnel as they were sealed with either a wood or metal cover [3]. Reportedly, the pits are concrete-lined and were filled with sand and gravel in 1982 [3; 4].

As part of their Phase II assessment, HRP advanced eight soil borings and sampled surface soils at three locations on 19 and 20 September 1994 [5]. Soil borings were advanced to a depth of up to 13 feet bgs, but only three of the borings had surficial soils sampled (i.e., depth less than 2 feet). The other borings had deeper intervals sampled for laboratory analysis, but these samples are not evaluated under the soil exposure pathway as they were collected from depths greater than 2 feet.

HRP submitted surface soil samples for halogenated VOCs (EPA Method 8010), aromatic VOCs (EPA Method 8020), TCLP metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), and total cyanide analyses. No suitable reference surface soil sample exists amongst the three surface soils sampled. Surface soil boring sampling results indicated the presence of TCE at 366 ppb [5]. The metals, cadmium at 0.73 ppm and lead at 0.043 ppm, were also detected and provide an indication of leachability and not of total metal concentrations. No remedial activities are known to have been conducted on the property to date.

START did not perform surface soil sampling as part of the SI. No other surface soil sampling is known to have been conducted for the Nickson Industries property aside from that discussed above. Based on the results of previous sampling events, a release to surficial soils from on-site sources has been documented which potentially impacts on-site worker populations. However, based on the distance to the nearest residence (approximately 350 feet) and the lack of public use of the property, no impacts to nearby residential populations are known or suspected. To date, no actions have been taken to mitigate the release to surficial soils. Further details regarding the HRP soil sampling and analysis are presented in the Waste/Source Sampling section of this report.

AIR PATHWAY

Approximately 60 full-time personnel are employed on the property by U.S. Filter [3]. The nearest residence is located approximately 350 feet northeast of the Nickson Industries property at 29 West Street [3]. The nearest known school or day-care facility is the Kennedy Junior High School, which is located approximately 0.6 miles south-southeast of the Nickson Industries property [15]. An estimated 45,659 people live within 4-radial miles of the Nickson Industries property [41]. Table 13 summarizes the estimated population within 4-radial miles of the Nickson Industries property.

Table 13

Estimated Population Within 4-Radial Miles of Nickson Industries

Radial Distance from Nickson Industries (miles)	Estimated Population
On a source	60
> 0.00 to 0.25	420
> 0.25 to 0.50	1,109
> 0.50 to 1.00	4,286
> 1.00 to 2.00	14,038
> 2.00 to 3.00	12,900
> 3.00 to 4.00	12,906
TOTAL	45,719

[41]

Approximately 1,382 acres of freshwater wetlands are located within 4-radial miles of the Nickson Industries property [30; 31; 32; 33; 34; 35]. No wetlands are located on the property [3]. There are seven State-endangered species habitats and three State-threatened species habitats located within 4-radial miles of the property [40]. No Federally-listed species habitats are known to be located within 4-radial miles of the property. Table 14 summarizes the sensitive environments found within 4-radial miles of the Nickson Industries property.

Table 14

Sensitive Environments within 4-Radial Miles of Nickson Industries

Radial Distance from Nickson Industries (miles)	Sensitive Environment/Species (status)
On a source	Clean Water Act area
> 0.00 to 0.25	4 acres wetlands
> 0.25 to 0.50	1 acre wetlands
> 0.50 to 1.00	1 State-endangered species habitat
	40 acres wetlands
> 1.00 to 2.00	362 acres wetlands
> 2.00 to 3.00	375 acres wetlands
	3 State-endangered species habitats
	2 State-threatened species habitats
> 3.00 to 4.00	600 acres wetlands
	3 State-endangered species habitats
	1 State-threatened species habitat

[30; 31; 32; 33; 34; 35; 40]

No laboratory qualitative air samples are known to have been collected from the Nickson Industries property to date. In addition, no elevated readings were detected by air monitoring instruments utilized by START personnel during the on-site reconnaissance [3]. No odors or complaints of adverse health effects on the property or in the vicinity were noted during the on-site reconnaissance or regulatory review [3]. Based on the available data, no release of hazardous substances to the ambient air from on-site sources is known or suspected to have occurred, and no impacts to nearby residential populations or sensitive environments are known or suspected.

SUMMARY

The Nickson Industries property is located at 8 West Street (at the intersection of West and West Main Streets) in Southington, Hartford County, Connecticut. The Nickson Industries property consists of a 2.1-acre parcel and is located in a primarily commercial and industrial section of Southington. The property is bound by local businesses to the north; West Street and undeveloped commercial property to the east; and the Eightmile River, local businesses, and Interstate 84 to the south and west.

On 5 June 1997, Roy F. Weston, Inc. Superfund Technical Assessment and Response Team (START) personnel conducted an on-site reconnaissance to verify current property conditions. On 3 December 1997, START conducted environmental sampling at the property. The Nickson Industries property contains a single-story building, three temporary storage trailers, asphalt paved areas, and landscaped lawn areas. The on-site building occupies approximately 25,000 square feet (ft²) of the property. The property has been utilized for a variety of commercial and industrial purposes since circa 1850.

U.S. Filter Corporation and its predecessor have operated at the property for the manufacture of water treatment and purification systems since 1982. START personnel observed the following manufacturing activities at the property: welding, machining, and assembly of water purification vessels; steel bead blasting (cleaning) of assembled units; painting of units; polyvinyl chloride coating of units; and wiring of electronic controls. Solid waste and hazardous waste accumulation areas were observed and noted to be well maintained. Hazardous waste, consisting of waste paint, waste paint thinner, and waste hydraulic and cutting oils from machining operations, is stored in 55-gallon drums inside a designated placarded metal closet located in the on-site building. No staining of interior floors or other potential interior areas of concern were noted.

Exterior portions of the Nickson Industries property were also inspected during the START on-site reconnaissance. The Eightmile River flows north-to-south through the western portion of the property and underneath a portion of the on-site building. Fifteen inactive settling pits were observed by START personnel during the on-site reconnaissance in the western portion of the property. Reportedly, the pits are concrete-lined and were filled with sand and gravel in 1982. The inactive settling pits are arranged in succession leading from the on-site building to the Eightmile River. The settling pits were allegedly utilized for the primary treatment of plating wastewaters prior to discharge to the Eightmile River.

Environmental assessments conducted by HRP Associates, Inc. between 1990 and 1994 documented the presence of soil and groundwater contamination at the Nickson Industries property. Volatile organic compounds (VOCs) and metals have been detected in on-site surface and subsurface samples, and the presence of these substances is consistent with historic on-site operations. Similar compounds were also detected in monitoring well groundwater samples at levels above reference concentrations.

An estimated 42,629 people are served by public groundwater supply sources within 4-radial miles of the Nickson Industries property. Contamination of public drinking water supply wells within 4-radial miles of the Nickson Industries property has been documented. However, this contamination is not assumed to be attributable Nickson Industries property. The Eightmile River, located adjacent to the property, is a discharge point for groundwater based on hydrogeologic information which documents that on-site groundwater flows southwest towards the river. As a result, the river likely acts as a groundwater barrier against groundwater traveling to the opposite side of the river.

The probable point of entry (PPE) into surface water for overland flow originating from the property is the northwest corner of the property where the most upstream point of the stretch of Eightmile River bordering the property is located. From the PPE, the Eightmile River flows in a southeasterly direction for approximately 0.4 miles until it reaches the Quinnipiac River. The Quinnipiac River makes up the remaining 14.6 miles of the 15-mile downstream pathway. Two State-endangered species habitats and approximately 5.5 miles of wetland frontage are known to be located along the 15-mile downstream pathway from the Nickson Industries property. No wetlands are located along the stretch of the Eightmile River adjacent to the Nickson Industries property. On 3 December 1997, START personnel conducted sediment sampling activities along the Eightmile River adjacent to the Nickson Industries property. VOCs, semivolatile organic compounds, one pesticide, and inorganic substances were detected which may be attributable to the property. The detected substances are similar to contaminants detected previously and are consistent with historic on-site activities.

Sixty on-site employees were observed by START personnel during the on-site reconnaissance. The nearest residence to the Nickson Industries property is located at 29 West Street, approximately 350 feet northeast of the property. No known schools or day-care facilities are located within 200 feet of the property. Pedestrian and vehicular access to the Nickson Industries property is not restricted but is limited by the adjacent Eightmile River. An estimated 5,815 people reside within 1-radial mile of the property. An estimated 45,659 people reside within 4-radial miles of the Nickson Industries property.

Approximately 1,382 acres of freshwater wetlands are located within 4-radial miles of the Nickson Industries property. No wetlands are located on the property. There are seven State-endangered species habitats and three State-threatened species habitats located within 4-radial miles of the property.

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ATTACHMENT A

NICKSON INDUSTRIES

SEDIMENT SAMPLE ANALYTICAL RESULTS
START

Samples collected on 3 December 1997